

***Epicauta atomaria* and other *Epicauta* species (Coleoptera: Meloidae)**

This short description has been prepared in the framework of the EPPO Study on Pest Risks Associated with the Import of Tomato Fruit. The whole study can be retrieved from the EPPO website.

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Africa	Asia	Oceania	North America	South-Central America and Caribbean
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Why	<p><i>Epicauta</i> spp. was identified in the EPPO tomato study as USDA (2013a) reported interceptions of adults on tomato fruit (without indication of species). There are many species of <i>Epicauta</i> in the Americas, which generally seem to be polyphagous on hosts in several families. <i>E. atomaria</i> seemed to be the most important pest from the literature available, and was mentioned in recent publications. However, other species were also mentioned in the literature in association with tomato. This record focuses on <i>E. atomaria</i>, and few data on other species are given in a table.</p> <p>Note: Adams and Selander (1979) provided a comprehensive review of part of <i>Epicauta</i> (vittata group), including their biology, hosts and distribution. Due to the volume of this publication, it was possible to exploit it all in this screening, but it could be used if these pests are further studies.</p>
Where	<p>EPPO region: absent.</p> <p>South America: Brazil, Argentina (Diaz de Almeida et al., 2009; Hallan, 2010). Diaz de Almeida et al., 2009 also mention Colombia but in relation to a list of several pests (it is not certain that they all are in Colombia). Within Brazil (Netto and Guilhem, 2000): Bahia, Espírito Santo, Goiás, Minas Gerais, Rio de Janeiro, São Paulo, Paraná, Santa Catarina, Rio Grande do Sul.</p>
Climatic similarity	<p>Medium. 9 common climates considering Argentina and Brazil, but likely to be lower. There are only 3 common climates with the Brazilian distribution indicated above. The distribution in Argentina was not searched.</p>
On which plants	<p><i>E. atomaria</i> is polyphagous and recorded on tomato, potato, sweet potato, chilli, pepper, <i>Solanum aethiopicum</i>, eggplant, lucerne, <i>Nicotiana</i> sp., beet, chard, soybean, spinach, cotton, passionfruit, horticultural plants (Netto and Guilhem, 2000; Boica Junior et al., 2007).</p>
Damage	<p>Eggs are laid in the soil or on plants (in case of high population levels) (Netto and Guilhem, 2000). Larvae are in the soil, and feed on roots and tubers (mainly potato in Netto and Guilhem, 2000). Adults leave in the aerial parts of plant and feed on leaves (Netto and Guilhem, 2000). They are mobile, and move into crops in large numbers (up to 4000 individuals), consume leaves and may leave only stems, petioles and fruits (CNPB, ND; Netto and Guilhem, 2000). In passionfruit, individual plants may lose 100% of flower buds, but production losses were only 5% (localized attacks). <i>E. atomaria</i> is one of the insect pests that can reduce tomato yield (Diaz de Almeida et al., 2009). It is mentioned amongst major pest of economic importance for tomato for South America by Berlinger (1987). In Brazil, <i>E. atomaria</i> and <i>E. suturalis</i> were considered as rare due to insecticide use, but may take more importance with the shift to biological control (CNPB, ND).</p> <p>Note: the adults of some other species are recorded to sometimes feed on flowers or fruit, but it does not seem to be the case for <i>E. atomaria</i>.</p>
Dissemination	<p>The biology of the pest does not seem favourable to its association with consignments of fruit, apart that it may be present in very large numbers in a crop or that eggs may be laid on plants in case of high populations levels. Some other species are said to sometimes feed on fruit or flowers, but this does not seem to be the case for <i>E. atomaria</i>. USDA (2013a) reports 3 interceptions (adults) of <i>Epicauta</i> sp. on tomato fruit. Larvae could be associated with potato tubers.</p>
Pathway	<p>Fruit? plants for planting of host plants, tubers (potato and sweet potato?), soil, from countries where <i>E. atomaria</i> occurs.</p>
Possible risks	<p>Some hosts of <i>E. atomaria</i> are important crops in the EPPO region. The climatic similarity according to the EPPO Study between the area where it occurs and the EPPO region is medium. It may also establish in glasshouses. It is not clear if control methods are available.</p>
Categorization	<p>None found.</p>

Summary of other *Epicauta* species

	Hosts	Distribution	Comments
<i>Epicauta abadona</i>	tomato and polyphagous (table in Adams and Selander, 1979)	North America: Mexico, USA (Adams and Selander, 1979)	
<i>Epicauta albicincta</i>	Tomato (Morales et al. 2003) No other reference found.	South America: Venezuela (Morales et al., 2003). GBIF (2013) only contains 1 record, for Venezuela. No other records found, probably incomplete.	Only one reference found. Rated "2" at Step 2 due to low climatic similarity
<i>Epicauta apure</i>	tomato and polyphagous (see table in Adams and Selander, 1979)	Caribbean: Trinidad, South America: Venezuela (Adams and Selander, 1979)	Downgraded to "2" at Step 2 due to low climatic similarity. Part of the records for <i>E. grammica</i> may relate to <i>E. apure</i> (see <i>E. grammica</i>)
<i>Epicauta aragua</i>	Possibly <i>Solanum tuberosum</i> and others (Adams and Selander, 1979)	Central America and South America: Colombia, Costa Rica, El Salvador, Honduras, Panama, Venezuela (Adams and Selander, 1979)	Part of the records for <i>E. grammica</i> may relate to <i>E. aragua</i> (see <i>E. grammica</i>)
<i>Epicauta grammica</i>	Tomato (Morales et al., 2003) No other publication giving hosts was found. Likely to be incomplete	South America: Venezuela (Morales et al., 2003). Also Brazil, Argentina (Adams and Selander, 1979)	Adams and Selander (1979) note that there may be several species linked to <i>E. grammica</i> records in the literature, and propose that those in the Northern part of the range be attributed to <i>E. apure</i> and <i>E. aragua</i> .
<i>Epicauta immaculata</i>	tomato (USDA, 2013b). Surely others (not searched further)	At least Mexico (USDA, 2013b), not searched further	Added at Step 3 from USDA (2013b). Not searched further
<i>Epicauta leopardina</i>	tomato and polyphagous (table in Adams and Selander, 1979)	South America: Argentina, Brazil (Adams and Selander, 1979)	Economic importance (Adams and Selander, 1979)
<i>Epicauta luteolineata</i>	tomato and polyphagous (table in Adams and Selander, 1979)	South America: Argentina (Adams and Selander, 1979)	
<i>Epicauta monachia</i>	tomato and polyphagous (table in Adams and Selander, 1979)	South America: Argentina, Bolivia (Adams and Selander, 1979)	Economic importance (Adams and Selander, 1979)
<i>Epicauta ocellata</i>	tomato (USDA, 2013b). Surely others (not searched further)	At least Mexico (USDA, 2013b), not searched further	Added at Step 3 from USDA (2013b). Not searched further
<i>Epicauta occidentalis</i>	tomato and polyphagous (table in Adams and Selander, 1979)	North America: USA (Adams and Selander, 1979)	Economic importance (Adams and Selander, 1979)
<i>Epicauta pestifera</i>	tomato and polyphagous (table in Adams and Selander, 1979)	North America: USA, but not detailed (Adams and Selander, 1979)	Economic importance (Adams and Selander, 1979)
<i>Epicauta pilme</i>	potato (Bayer Chile, ND), also alfalfa (Anon. ND)	South America: Chile (Bayer Chile, ND), Also Argentina (Anon., ND)	This species was identified during the Dutch Quickscreen screening for tomato pests from South America. The reference used (Bayer Chile) mentioned potato but not tomato. No reference to tomato was found, but as <i>Epicauta</i> species generally seem polyphagous, this pest was kept.
<i>Epicauta suturalis</i>	tomato (CNPV, ND), Polyphagous, incl. Capsicum (Pinho de Moura et al., 2013)	South America: Brazil (Pinho de Moura, 2013). Dvorak (2008) describes <i>E. suturalis</i> from Asia: China, but it is not clear if it refers to the same species	Downgraded to "2" at Step 2 due to low climatic similarity
<i>Epicauta tamara</i>	tomato and polyphagous (table in Adams and Selander, 1979)	North America: Mexico (Adams and Selander, 1979)	
<i>Epicauta temexa</i>	tomato and polyphagous (table in Adams and Selander, 1979)	North America: Mexico, USA (Adams and Selander, 1979)	Economic importance (Adams and Selander, 1979)
<i>Epicauta unilineata</i>	tomato and polyphagous (table in Adams and Selander, 1979)	North America, Central America: El Salvador, Guatemala, Mexico (Adams and Selander, 1979)	
<i>Epicauta vittata</i>	lucerne, potato (CABI CPC); tomato, potato (Adams and Selander, 1979)	North America: Canada USA (Adams and Selander, 1979), not searched further	Economic importance (Adams and Selander, 1979). An EPPO PRA was prepared (EPPO, 2001). The pest was not added to the EPPO lists (considered unlikely to be associated with the pathway considered (potato only) and rather a soybean and lucerne pest) (see EPPO website). Quarantine pest for Colombia 2010, Ecuador 2008, Peru 2013 (from the IPP)
<i>Epicauta vitticolis</i>	tomato (USDA, 2013b). Surely others (not searched further)	Mexico, Guatemala, Honduras, Nicaragua (Adams and Selander, 1979)	Added at Step 3 from USDA (2013b). Not searched further

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